

1. Record Nr.	UNINA9910877842203321
Titolo	Building and solving mathematical programming models in engineering and science // Enrique Castillo ... [et al.]
Pubbl/distr/stampa	New York, : Wiley, 2002
ISBN	1-283-33192-6 9786613331922 0-471-22529-0 0-471-46165-2
Descrizione fisica	1 online resource (568 p.)
Collana	Pure and applied mathematics
Altri autori (Persone)	CastilloEnrique <1946->
Disciplina	620/.001/5197
Soggetti	Programming (Mathematics) Engineering models
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 533-540) and index.
Nota di contenuto	Building and Solving Mathematical Programming Models in Engineering and Science; Contents; Preface; I Models; 1 Linear Programming; 1.1 Introduction; 1.2 The Transportation Problem; 1.3 The Production Scheduling Problem; 1.3.1 Production Scheduling Problem 1; 1.4 The Diet Problem; 1.5 The Network Flow Problem; 1.6 The Portfolio Problem; 1.7 Scaffolding System; 1.8 Electric Power Economic Dispatch; Exercises; 2 Mixed-Integer Linear Programming; 2.1 Introduction; 2.2 The 0-1 Knapsack Problem; 2.3 Identifying Relevant Symptoms; 2.4 The Academy Problem; 2.5 School Timetable Problem 2.6 Models of Discrete Location 2.7 Unit Commitment of Thermal Power Units; Exercises; 3 Nonlinear Programming; 3.1 Introduction; 3.2 Some Geometrically Motivated Examples; 3.2.1 The Postal Package Example; 3.2.2 The Tent Example; 3.2.3 The Lightbulb Example; 3.2.4 The Surface Example; 3.2.5 The Moving Sand Example; 3.3 Some Mechanically Motivated Examples; 3.3.1 The Cantilever Beam Example; 3.3.2 The Two-Bar Truss Example; 3.3.3 The Column Example; 3.3.4 Scaffolding System; 3.4 Some Electrically Motivated Examples; 3.4.1 Power Circuit State Estimation; 3.4.2 Optimal Power Flow 3.5 The Matrix Balancing Problem 3.6 The Traffic Assignment Problem;

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8 Optimality and Duality in Nonlinear Programming

Sommario/riassunto

Fundamental concepts of mathematical modeling Modeling is one of the most effective, commonly used tools in engineering and the applied sciences. In this book, the authors deal with mathematical programming models both linear and nonlinear and across a wide range of practical applications. Whereas other books concentrate on standard methods of analysis, the authors focus on the power of modeling methods for solving practical problems—clearly showing the connection between physical and mathematical realities—while also describing and exploring the main concepts and tools at work.
